AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (previously presented) Method for spill-free refueling, the method comprising the steps of:

establishing a liquid-tight connection between a nozzle of a refueling gun for fuel dispensing and a coupling piece of a fuel receiving object, fuel being provided through the fuel receiving object to a fuel container;

detecting a predetermined fuel level in the fuel container; and

automatically interrupting the fuel flow when said level is detected,

wherein a level detection signaling configuration for detecting the predetermined fuel level in the fuel container is established by moving the gun (1) into position for establishment of the liquid-tight connection.

2. (previously presented) Method according to claim 1, wherein signals (26') for detecting said predetermined level are transferred to the fuel container (7) from means (26, 27) carried and supported by the gun.

3. (previously presented) Method according to claim 1, wherein a signal corresponding to detection of said predetermined level is transferred to receiving means (28, 29), carried and supported by the gun for further processing.

4. (previously presented) Method according to claim 1, wherein said predetermined level is detected by means of optical signals.

5. (previously presented) Method according to claim 4, wherein optical signals (26') are transferred from an optical fiber (26) and lens (27) arrangement on the gun and optical signals are received by an optical fiber (28) and lens (29) arrangement on the gun.

6. (previously presented) Method according to claim 4, wherein optical signals are transferred to reflection means (29', 37) in the container, the reflection means being arranged to reflect the optical signals when the fuel level has not reached the reflection means and to transmit a considerable part of the optical signals when the fuel has reached the reflection means due to a change in refractory configuration, and in that the change in reflected signal is taken as an indication for the fuel to have reached the predetermined level.

7. (previously presented) Method according to claim 6, wherein the reflection means obtains a deviation between transferred optical signals and reflected optical signals so that means for transfer (26, 27) and means for receiving (28, 29) can be positioned close together on the gun.

8. (previously presented) Method according to claim 6, wherein reflection of transferred optical signals is obtained by a prism and lens arrangement (37) being configured so that approximately the same reflection properties are obtained irrespective of where along said arrangement (37) transferred optical signals are coming in, whereby the gun may be applied and turned within a certain angle interval (38) substantially maintaining the effective reflection properties.

9. (previously presented) Method according to claim 6, wherein reflection is obtained by at least one cube corner prism (39).

10. (previously presented) Method according to claim 9, wherein reflection is obtained by at least three cube corner prisms arranged in a row.

11. (previously presented) Method according to claim 9, wherein each cube corner prism is provided with complementary

optics (41) in the form of two lens parts (42, 43) for obtaining a deviation between transferred optical signals and reflected optical signals and for concentration of the reflected optical signals.

12. (previously presented) Method according to claim 8, wherein optical signals are transferred through a slit (35) on the fuel receiving object side of the connection, the slit being fixed in relation to the reflection means, the slit setting said angle interval.

13. (previously presented) Method according to claim 1, wherein complete and secure connection between the nozzle and the coupling piece is detected by means of the level detection signaling configuration, said configuration being not fully established until said connection is completed.

14. (previously presented) Method according to claim 1, wherein completed and acceptable connection between the nozzle and the coupling piece is indicated by a mechanical indication and release arrangement of the gun by moving a release knob (9) from a release position to a coupling position, release of the connection being initiated by an operator pushing said knob back to the release position.

15. (previously presented) Method according to claim 14, wherein reflected optical signals, are stopped from being communicated to further processing by shutter means (44) of a linkage arm (14) arrangement for the knob when said knob is in the release position, said communication being opened by moving said shutter means when the knob is moved to said coupling position.

16. (previously presented) Method according to claim 1, wherein the fuel connection between the nozzle and the coupling piece is opened in successive steps during the coupling procedure, the nozzle opening the coupling piece before the coupling piece opens the nozzle, and, when closing, the nozzle is closed before the coupling piece is closed.

17. (previously presented) Method according to claim 6, wherein a fuel pipe (8) carries the reflection means, the fuel pipe being through which fuel is entered into the fuel container and which ends below said predetermined fuel level (8').

18. (previously presented) Method according to claim 1, wherein the level detection signaling configuration comprises a two-way optical communication between an object optical communication unit (45) and an optical control and communication unit (32).

19. (previously presented) System for spill-free refueling, comprising:

means for establishing a liquid-tight connection between a nozzle of a refueling gun for fuel dispensing and a coupling piece of a fuel receiving object, through which fuel is intended to be provided to a fuel container of said object; and

means for detecting a predetermined fuel level in the fuel container and for automatically interrupting the fuel flow when said level is detected,

wherein a level detection signaling configuration for detecting the predetermined fuel level in the fuel container is configured to be established by means of moving said gun (1) into position for establishment of the liquid-tight connection.

20. (previously presented) System according to claim 19, wherein means (26, 27) carried and supported by the gun are provided for transferring signals (26') for detecting said predetermined level (8') to the fuel container (7).

21. (previously presented) System according to claim 19, wherein receiving means (28, 29) carried and supported by the gun are provided for receiving a signal corresponding to detection of said predetermined level (8') for further processing.

22. (previously presented) System according to claim 19, further comprising:

optical signals (26') for detecting said predetermined level.

23. (previously presented) System according to claim 22, further comprising:

an optical fiber (26) and lens (27) arrangement on the gun for transferring optical detection signals (26'); and

an optical fiber (28) and lens (29) arrangement on the gun for receiving optical signals.

24. (previously presented) System according to claim 22, further comprising:

reflection means (29', 37) arranged in the container (7) for receiving optical signals transferred to the container,

the reflection means being arranged to reflect the optical signals when the fuel level has not reached the reflection means and to transmit a considerable part of the optical signals when the fuel has reached the reflection means due to a change in refractory configuration and in that the change in reflected signal is taken as an indication for the fuel to have reached the predetermined level.

25. (previously presented) System according to claim 24, wherein the reflection means are arranged so that a certain deviation between transferred optical signals (26') and reflected optical signals is provided, so that means for transfer (26, 27) and means for reception (28, 29) are postionable close together on the gun.

26. (previously presented) System according to claim 24, further comprising:

a prism and lens arrangement (37) for reflection of transferred optical signals (26') having the same or approximately the same reflection properties irrespective of where along said arrangement transferred optical signals are coming in, whereby the gun may be applied and turned within a certain angle interval (38) substantially maintaining the effective reflection properties.

27. (previously presented) System according to claim 24, wherein said reflection means comprises at least one cube corner prism (39).

28. (previously presented) System according to claim 27, wherein said reflection means comprises at least three cube corner prisms arranged in arow.

29. (previously presented) System according to claim 27, wherein each cube corner prism is provided with complementary optics (41) in the form of a lens arrangement for obtaining a deviation between transferred optical signals (26') and reflected optical signals (28') and for concentration of the reflected optical signals.

30. (previously presented) System according to claim 29, wherein said complementary optics comprise two lens parts (42, 43) arranged on a top surface (40) of a cube corner prism, each of said two lens parts being a portion of a lens, central portions (42', 43') of said two lens parts abutting each other, and being arranged so that optical signals coming in against one of said two lens parts is reflected through an other of said two lens parts, the optical axes of the two lens parts being off-set with respect to each other and the center (39') of the prism.

31. (previously presented) System according to claim 30, wherein the general configuration of the two lens parts are off-spherical, whereby the one of said two lens parts is spherical and the other of said two lens parts is cylindrical, or both of said two lens parts are off-spherical, in order to accumulate lack of tolerances with respect to positioning of the optical signal transfer arrangement.

32. (previously presented) System according to claim 26, further comprising:

a slit (35) on the fuel receiving side of the connection, through which the optical signals (26', 28') are intended to pass, said slit fixed in relation to the reflection means and setting said angle interval.

33. (previously presented) System according to claim 19, further comprising:

means (28, 44) for detecting complete and secure connection between the nozzle and the coupling piece by means of the level detection signaling configuration, said configuration being fully established when said connection is completed.

34. (previously presented) System according to claim 19, further comprising:

a mechanical indication and release arrangement of the gun for indication of complete and acceptable connection between the nozzle and the coupling piece by moving a release knob (9) from a release position to a coupling position, and release of the connection being initiated by an operator pushing said knob (9) back to the release position.

35. (previously presented) System according to claim 34, wherein the release knob (9) is supported by a linkage arm

(14) configured to co-act with a release ring (17) tiltably connected to an outer sleeve (18) of the nozzle, said sleeve being intended to be moved towards the coupling piece in relation to the release ring and an inner nozzle part (20) during the nozzle and coupling piece connection procedure, whereby the release ring is tilted and leveled out against a connection sleeve (21) of said inner nozzle part and whereby the release ring turns the linkage arm and the knob to said coupling position and in that, during release of the nozzle from the coupling piece, the linkage arm, by an operator pressing the knob to said release position, being configured to tilt the release ring, which due to its attachment to the outer sleeve is configured to push the connection sleeve towards the nozzle free end and thereby releasing the coupling piece from the nozzle.

36. (previously presented) System according to claim 34, further comprising:

shutter means (44) of a linkage arm arrangement for said knob, by means of which reflected optical signals are stopped from being communicated to further processing when said knob is in the release position, and in that said communication is opened by moving said shutter means when the knob is moved to said coupling position.

37. (previously presented) System according to claim 19, wherein the fuel connection between the nozzle and the coupling piece is configured so that the fuel connection is opened in successive steps during the coupling procedure, the nozzle being configured to open the coupling piece and the coupling piece being configured to open the nozzle thereafter and, when closing, the nozzle is closed before the coupling piece is closed.

38. (previously presented) System according to claim 19, wherein a fuel pipe (8) is provided through which fuel enters into the fuel container, said pipe acting as a support for a reflection means (29') and ending below said predetermined level (8').

39. (previously presented) System according to claim 19, further comprising:

a two-way optical communication between an object optical communication unit (45) of the fuel receiving object carried by the object and an optical control and communication central unit (32).

40. (previously presented) System according to claim 39, wherein said two-way optical communication is arranged by means of light decoding and a communication prism (46) co-acting

with a dual optical communication fiber (47) connected to the object optical communication unit (45).

41-62 (cancelled).

63. (previously presented) Method according to claim 6, wherein the optical signals are in the form of visible light.

64. (previously presented) Method according to claim 7, wherein a distance (d) between said means for transfer (26, 27) and said means for receiving (28, 29) is about 6 mm.

65. (previously presented) Method according to claim 8, wherein the prism and lens arrangement (37) has an arc-shaped configuration.

66. (previously presented) System according to claim 24, wherein said optical signals are in the form of visible light.

67. (previously presented) System according to claim 25, wherein a distance (d) between said means for transfer (26, 27) and said means for receiving (28, 29) is about 6 mm.

68. (previously presented) System according to claim 26, wherein said prism and lens arrangement (37) has an arc-shaped configuration.

69. (previously presented) System according to claim 28, wherein the at least three cube corner prisms are arranged in an arc-shaped row.

70. (previously presented) System according to claim 32, wherein said slit is arc-shaped.

71. (cancelled).